



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/838,520	04/19/2001	Geoffrey T. Haigh	A0312/7393 SJH	9453

23628 7590 10/18/2002

WOLF GREENFIELD & SACKS, PC
FEDERAL RESERVE PLAZA
600 ATLANTIC AVENUE
BOSTON, MA 02210-2211

EXAMINER

DEBERADINIS, ROBERT L

ART UNIT	PAPER NUMBER
----------	--------------

2836

DATE MAILED: 10/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/838,520

Applicant(s)

GEOFFREY T. HAIGH et al.

Examiner

Robert L. DeBeradinis

Art Unit

2836



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Sep 16, 2002
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-27 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of:

- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ | 6) <input type="checkbox"/> Other: |

Art Unit: 2836

DETAILED ACTION

The reply filed 9/16/02 requests reconsideration on the basis that Chen teaches away from the claimed invention, therefore defeats any argument that Chen would suggest the combination. The claims are not allowable as explained below.

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper time wise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321© may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Art Unit: 2836

2. Claims 14-27 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims of U.S. Patent No. 6,087,882 in view of GUTIERREZ 5,969,590 and DOUGLASS 5,786,979.

Regarding claim 14.

CHEN discloses a signal isolator comprising:

a first substrate (column 2, line 1);

a first passive component formed on first substrate (column 2, line 1);

an isolation layer formed over the first passive component (column 3, lines 9-12);

a second passive component formed over the isolation layer (column 3, lines 9-12);

an input for receiving an input signal (figure 1, input 2); and

a driver circuit (103) coupled between the input and one of said passive components

(L1,110).

CHEN does not disclose a second passive component being a coil. CHEN, however does disclose that transformer based isolators are well known (column 1, lines 20-22) and GUTIERREZ discloses an integrated circuit transformer with inductor-substrate isolation, including the first and second passive components being coils (16,17).

It would have been obvious to one having ordinary skill in the art at the time of this invention to design a signal isolator comprising, an integrated circuit transformer wherein the

Art Unit: 2836

second passive component is a coil to provide a transformer based isolator (CHEN, column 1, lines 20-22).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over CHEN 6,087,882 in view of DOUGLASS 5,786,979.

Regarding claim 15.

CHEN discloses a signal isolator comprising:

a first substrate (column 2, line 1);

a first passive component formed on first substrate (column 2, line 1);

an isolation layer formed over the first passive component (column 3, lines 9-12);

a second passive component formed over the isolation layer (column 3, lines 9-12);

an input for receiving an input signal (figure 1, input 2); and

a driver circuit (103) coupled between the input and one of said passive components

(L1,110).

CHEN does not disclose the first and second passive components being capacitor plates.

CHEN, however does disclose that capacitively coupled isolators are well known (column 1, lines 20-22) and

DOUGLASS discloses a conductive layer, disposed over a circuit layer on a substrate, divided into electro-magnetic coupling device elements such as capacitor plates.

Art Unit: 2836

It would have been obvious to one having ordinary skill in the art at the time of this invention to design a signal isolator having the first and second passive components being capacitor plates to increase inter-chip interconnection capacity while maximizing chip real estate allocated to a circuit layer (DOUGLASS, abstract).

Regarding claims 16.

DOUGLASS discloses the first substrate is a semiconductor substrate (column 1, lines 42-45).

Regarding claim 17.

CHEN discloses driver 103 may be fabricated on first substrate also a single die implementation is also possible including the driver and the passive component (column 5, lines 1-6).

CHEN does not disclose first substrate is a semiconductor substrate.

DOUGLASS discloses the first substrate is a semiconductor substrate (column 1, lines 42-45).

It would have been obvious to one having ordinary skill in the art at the time of this invention to include the driver and the first passive component to be fabricated on the first substrate to reduce size and improve isolation between the driver and the circuits coupled to the driver.

Regarding claim 18.

Art Unit: 2836

CHEN discloses the driver circuit may be, for example, formed on a first substrate and receiver formed on a second substrate (column 1, line 67, column 2, lines 1-3).

CHEN does not disclose a semiconductor substrate.

DOUGLASS discloses the first substrate is a semiconductor substrate (column 1, lines 42-45).

It would have been obvious to one having ordinary skill in the art at the time of this invention to arrange the first substrate and the second substrate in an order that is most convenient to a system layout and to design the circuits on semiconductor substrates to minimize size.

Regarding claim 19.

DOUGLASS discloses the first passive component is formed on top of the first substrate (column 3, lines 17-32).

Regarding claims 20-27.

CHEN discloses driver 103 may be fabricated on first substrate also a single die implementation is also possible including the driver and the passive component (column 5, lines 1-6).

CHEN does not disclose all the embodiments, as claimed, for the fabrication of an isolator substrate.

GUTIERREZ discloses several embodiments for the fabrication of integrated circuit transformers with inductor-substrate isolation.

Art Unit: 2836

It would have been obvious to one having ordinary skill in the art at the time of this invention to merely arrange a substrate for an isolator having passive components, isolation layers, shielding and the grounding layers to provide the desired isolation required for a magnetically coupled digital isolator.

Response to Arguments

3. Applicant's arguments filed 9/16/02 have been fully considered but they are not persuasive.

Applicant argues that although CHEN discloses coil L1 being a passive component formed on a substrate and because CHEN discloses a magnetically coupled digital isolated using spin value resistors wherein the coil magnetically couples to elements of the bridge instead of coupling to a second coil, therefore, CHEN teaches away from transformer coupled devices.

CHEN discloses other means of coupling are well known and transformer base isolators are among the well known. CHEN provides an improvement over the well known transformer coupled device. One half of CHAN'S invention (L1) is a magnetically coupling device coupling to the spin value elements instead of coupling to a second coil. The second coil being formed on a substrate similar to (L1) configuration. GUTLERREZ discloses the well known integrated circuit transformer with inductor-substrate isolation.